

Remarks

Reconsideration and withdrawal of the rejections set forth in the above-mentioned Official Action in view of the foregoing amendments and the following remarks are respectfully requested.

Claims 17-20 and 27-30 are now pending in the application, with Claims 17 and 27 being independent. Claims 21-26 have been cancelled without prejudice, Claim 17 has been amended and Claims 27-30 have been added herein.

The Examiner has required restriction between two groups of inventions: Group I (Claims 17-20) and Group II (Claims 21-26). Applicant telephonically elected to prosecute the invention of Group I and that election is hereby affirmed. Claims 21-26 have been cancelled herein without prejudice, and have been presented in a divisional application.

Support for the amendments to Claim 17 can be found in the substitute specification at page 6, lines 1-5 (paragraph [0021]) and page 7, lines 10-13 (paragraph [0026]), as well as in Figs. 1 and 2. Of course, the claims are not intended to be limited in scope to these preferred embodiments.

Claims 17-20 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Without conceding the propriety of this rejection, Applicant has reworded the language questioned by the Examiner in the manner suggested by the Examiner. Reconsideration and withdrawal of the § 112, second paragraph, rejection are requested.

Claims 17-20 were rejected under obviousness-type double patenting as being unpatentable over the claims of U.S. Patent No. 6,651,680. This rejection is traversed.

As is recited in independent Claim 17, the present invention relates to an apparatus for washing glass substrates. The apparatus includes holding means, ultraviolet exposure means, a cassette and an ultrasonic washing vessel. The holding means bears a glass substrate having thereon a transparent electrode. The ultraviolet exposure means irradiates the surface of the transparent electrode on the glass substrate borne by the holding means with ultraviolet rays. The cassette is adapted to receive plural sheets of the glass substrate irradiated with ultraviolet rays. The ultrasonic washing vessel is adapted to receive the cassette having the glass substrate irradiated with ultraviolet rays and dip the plural sheets of the glass substrate in pure water and wash the glass substrate under application of ultrasonic waves.

On the contrary, the claims of US '680 recite features not recited in Claim 17. For example, Claim 1 of US '680 recites both a first and a second ultrasonic cleaning vessel as well as a drying vessel and conveying means. The conflicting claims are believed to be patentably distinct from one another. Reconsideration and withdrawal of the obviousness-type double patenting rejection are requested.

Claims 17-20 were rejected under 35 U.S.C. § 103 as being unpatentable over Japanese Laid-Open Patent Application No. 63-271938 (Shindo) in view of U.S. Patent No. 5,071,488 (Takayama et al.). This rejection is also respectfully traversed.

Shindo relates to a method of cleaning a hard surface. As understood by Applicant, Shindo references glass substrates provided with transparent conductive films (page 9, paragraph 2 of English translation). Shindo merely mentions the possibility of using the disclosed cleaning method to clean the glass substrates provided with the transparent conductive films, instead of the photomasks. Applicant submits, however, that Shindo fails to disclose or suggest at least ultraviolet exposure means for irradiating the surface of a transparent electrode on a glass substrate, as recited in Claim 17. That is, Shindo fails to disclose or suggest directly cleaning the transparent electrode by ultraviolet radiation. One of ordinary skill in the art would not look to the teachings of ultraviolet irradiation cleaning of a photomask to be directly applicable to cleaning the surface of a transparent electrode on a glass substrate.

Thus, Shindo fails to disclose or suggest important features of the present invention recited in independent Claim 17.

Takayama et al. describes an apparatus for subjecting objects to a liquid treatment and utilizes a cassette 11 to carry the objects (wafers 3). However, Takayama et al. is not believed to remedy the deficiencies of Shindo noted above with respect to independent Claim 17.

Thus, independent Claim 17 is believed to be patentable over the citations of record. Reconsideration and withdrawal of the § 103 rejection are requested.

Newly-presented independent Claim 27 is also believed to be patentable over the citations of record. As recited in independent Claim 27, the present invention relates to an apparatus for washing glass substrates. The apparatus includes holding means,

ultraviolet exposure means, a cassette and a washing vessel. The holding means bears a glass substrate having thereon a transparent electrode. The ultraviolet exposure means irradiates the glass substrate borne by the holding means with ultraviolet rays. The cassette is adapted to receive plural sheets of the glass substrate irradiated with ultraviolet rays. The washing vessel is adapted to receive the cassette having the glass substrate irradiated with ultraviolet rays and dip the plural sheets of the glass substrate in pure water and wash the glass substrate under application of ultrasonic waves. No vessel utilizing a substance other than pure water is provided between the ultraviolet exposure means and the washing vessel.

Regarding nonobvious-type double patenting, independent Claim 27 also does not recite two ultrasonic cleaning vessels, a drying vessel or conveying means. Further, independent Claim 27 recites that no vessel utilizing a substance other than pure water is provided between ultraviolet exposure means and the washing vessel, an additional feature not recited in the claims of US '680. Accordingly, independent Claim 27 is believed to be patentably distinct from the claims of US '680.

As to Shindo, Applicant submits that pure water cleaning is described at page 11, line 9 of the translation and a cleaning treatment using an aqueous hydrogen peroxide and IPA is described at page 11, lines 4-10. That is, between the ultraviolet radiation treatment and pure water cleaning, IPA cleaning is performed. Accordingly, Shindo does not disclose or suggest that no vessel utilizing a substance other than pure water is provided between ultraviolet exposure means and a washing vessel using pure

water, a feature recited in independent Claim 27. Takayama et al. is not believed to remedy this deficiency.

Accordingly, independent Claim 27 is also believed to be patentable over the citations of record.

Because independent Claims 17 and 27 are believed to be patentable over the citations of record, reconsideration and withdrawal of the obviousness-type double patenting and § 103 rejections are respectfully requested.

For the foregoing reasons, Applicant respectfully submits that the present invention is patentably defined by independent Claims 17 and 27. Dependent Claims 18-20 and 28-30 are also allowable, in their own right, for defining features of the present invention in addition to those recited in their respective independent claims. Individual consideration of the dependent claims is requested.

Applicant submits that the present application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action, and an early Notice of Allowability are requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Mark A. Williamson", written over a horizontal line.

Mark A. Williamson
Attorney for Applicant
Registration No. 33,628

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
MAW/tnt

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